COASTAL ZONE CLASSIFICATION FROM SATELLITE IMAGERY

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SIGNIFICANT RESULTS

Studies of cover distribution along Delaware's coast -- especially in tidal wetlands -- have been made, utilizing semi-automated analysis of LANDSAT-1 MSS digital data. Cover maps with eleven vegetation and other cover categories have been produced with accuracy of identification above 80% in all categories. Recent studies have tested a new technique for training automated analysis which uses ground measured reflectance and atmospheric correction techniques to derive signatures for specific categories in preference to the relative radiance signatures derived from training sets within the LANDSAT data itself. Initial tests using a four category scheme indicate that training data based on absolute measured reflectance and atmospheric correction of LANDSAT data can produce comparable accuracy of categorization to that achieved using more conventional relative radiance training. The analysis of the same four categories produced average categorization accuracies of 82.1% by conventional relative radiance training and 81.9% by use of absolute reflectance signatures. It is believed that refinement of the absolute reflectance training technique may provide better results in the future. Regardless, the absolute reflectance training combined with atmospheric correction of scanner data provides a much more precise and better controlled data base which can be used to identify and assess promising uses of spectral discrimination in any area studied. Field results suggest, for instance, that the height of Spartina alterniflora may, to some extent, be detectable and that early winter imagery may provide optimal spectral differentiation of several wetlands cover types.